

## *Ellerkeldia wilsoni*, a New Species of Serranid Fish from Southwestern Australia

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**Abstract** *Ellerkeldia wilsoni* is described as a new serranid fish on the basis of 13 specimens collected off southwestern Australia. It differs from other members of the genus by a combination of features which include a distinctive color pattern, 17~18 soft dorsal rays, 8 soft anal rays, and 44~48 lateral-line scales. A key to the six species of *Ellerkeldia* from the Australia-New Zealand region is provided.

The serranid genus *Ellerkeldia* Whitley (1927) contains six species which are confined to shallow temperate seas of New Zealand and southern Australia. They are relatively small (under 25 cm SL), colorful fishes inhabiting rocky reefs. The genus is characterized by a combination of features which include the possession of an indistinct supplementary bone on the maxilla, no scales on the maxilla, 40~48 feeble lateral-line scales, 2~3 antrorse spines at the lower edge of the preopercle, and a dorsal fin with 10 (rarely 11) spines and 16~22 soft rays. According to Randall (pers. comm.) *Ellerkeldia* appears to be very similar to *Plectranthias* Bleeker (1873) of the Indo-Pacific region and may, in fact, represent a subgenus of this group. In addition, *Ellerkeldia* is closely related to the genus *Hypoplectrodes* Gill (1862) of southern Australia which contains a single species, *H. nigrorubrum* (Cuvier, in Cuvier and Valenciennes, 1828). It differs only by the possession of slightly smaller scales (55~58) in the lateral-line. Obviously further studies are required to determine the generic limits of *Ellerkeldia* and its allies.

The present paper describes a new species of *Ellerkeldia* from southwestern Australia. Most of the specimens were collected by the authors during December, 1978, at Geographe Bay, approximately 135 km directly south of Perth, Western Australia.

### Methods

Measurements and counts were made according to the methods of Hubbs and Lagler (1964) except for the following: orbit diameter is the horizontal diameter of the bony orbit;

caudal peduncle length is the horizontal measurement between the base of the last dorsal ray and base of the middle caudal rays; the number of scales between the middle of the spinous dorsal fin and lateral-line excludes the small dorsal base sheath-scales; and the last dorsal and anal rays are usually split to their base, but counted as a single ray.

Measurements were made with dial calipers to the nearest 0.1 mm. Standard length is abbreviated as SL. The counts and proportions which appear in parentheses apply to the paratypes when differing from the holotype.

Type specimens have been deposited at the Australian Museum, Sydney (AMS) and the Western Australian Museum, Perth (WAM).

### *Ellerkeldia wilsoni*, sp. nov.

(Figs. 1 and 2)

**Holotype:** WAM P26531-010, 151.0 mm SL, collected with rotenone about 3 km off Dunsborough, Geographe Bay, Western Australia (approximately 33°35'S, 115°08'E) in 16 m by G. R. Allen and J. T. Moyer on 26 December 1978.

**Paratypes:** AMS I.20233-010, 4 specimens, 23.0~140.0 mm SL, collected with rotenone at Canal Rocks, Western Australia (approximately 33°40'S, 114°59'E) in 15 m by B. C. Russel on 1 April 1978; WAM P26531-011, 2 specimens, 76.5 and 133.2 mm SL, collected with the holotype; WAM P26532-001, 5 specimens, 58.5~143.7 mm SL, same data as holotype except collected in 18 m on 27 December 1978; WAM P26533-001, 150.0 mm SL, collected with hook and line about 19 km west of Rottnest Island, Western Australia by J.

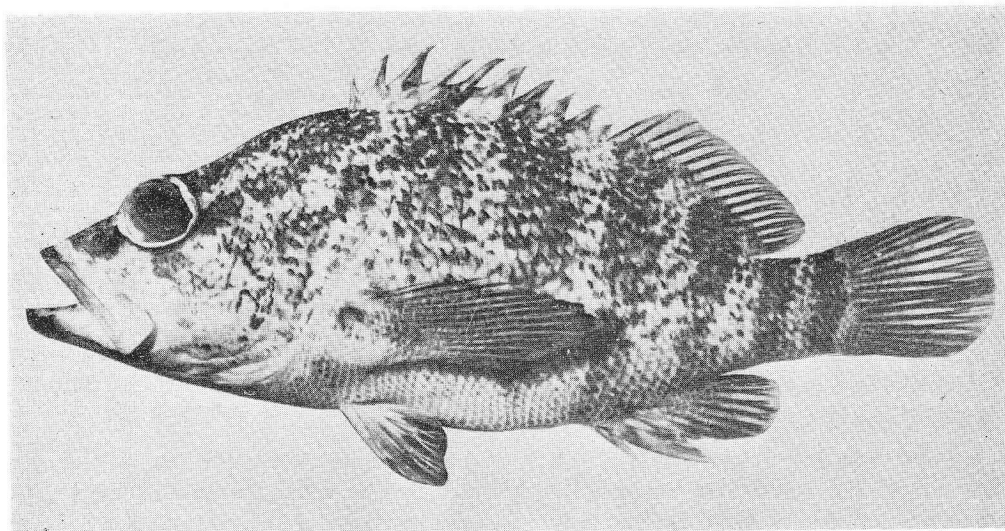


Fig. 1. *Ellerkeldia wilsoni*, paratype, 133.2 mm SL, Geographe Bay, Western Australia. (WAM P26531-011)

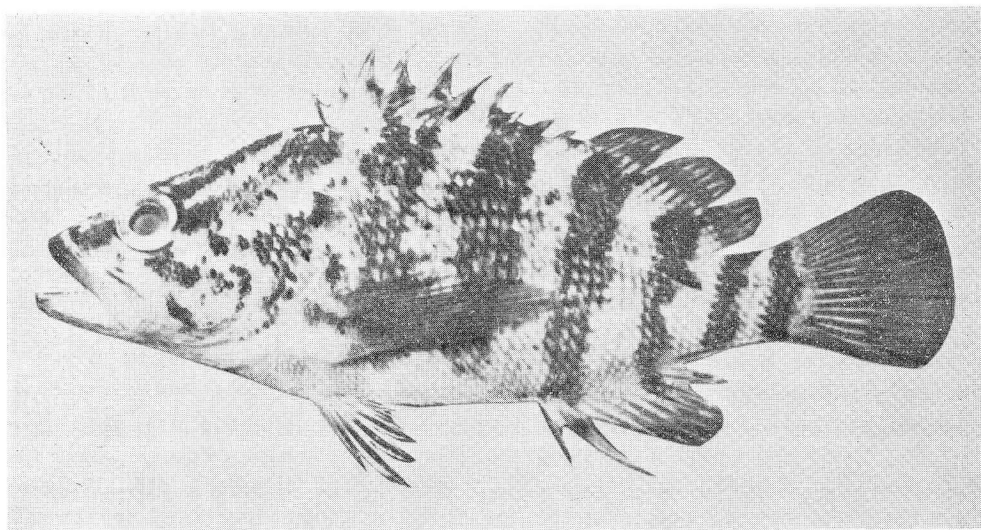


Fig. 2. *Ellerkeldia wilsoni*, paratype, 76.5 mm SL, Geographe Bay, Western Australia. (WAM P26531-011)

Mather on 20 October 1965.

**Diagnosis.** A species of *Ellerkeldia* with the following combination of characters: soft dorsal rays 17~18; soft anal rays 8; tubed lateral-line scales 44~48; a series of 6 brown bars along sides becoming somewhat faint in adults.

**Description.** See Tables 1 and 2 for a summary of selected counts and measurements. Dorsal rays X, 17 (X~XI, 17~18); pectoral rays 15 (15~16); gill rakers on lower portion

of first gill arch 7+5 rudiments (6~8+4~6 rudiments); tubed lateral-line scales 47 (44~48); horizontal scale rows from lateral-line to base of middle dorsal spines 5 (4~5); from lateral-line to anus 14 (14~16).

Body ovate and compressed, the greatest depth 2.4 (2.3~2.8), head length 2.2 (2.2~2.3), both in standard length. Snout 4.8 (4.1~4.8), eye diameter 4.1 (3.9~4.4), inter-orbital width 5.7 (6.8~9.8), length of maxillary 2.4 (2.2~2.5), least depth of caudal

peduncle 3.5 (3.2~3.6), length of caudal peduncle 4.6 (3.8~4.3), of pectoral fin 1.5 (1.3~1.5), of pelvic fin 2.3 (2.1~2.5), of first dorsal spine 8.4 (7.3~8.5), of fourth dorsal spine 3.3 (3.0~3.4), of last dorsal spine 5.4 (5.3~6.1), of longest soft dorsal ray 3.1 (2.8~3.3), of first anal spine 5.7 (4.3~5.3), of second anal spine 3.0 (2.4~3.0), of third anal spine 3.3 (2.8~3.6), of longest soft anal ray 2.6 (2.3~2.7), of caudal fin 2.1 (2.0~2.3), all in head length.

Pair of nasal openings on each side of snout, anterior opening with dermal flap; mouth

large, oblique, with lower jaw protruding slightly; supramaxillary present; lateral-line gradually ascending to within 4~5 scales below middle dorsal spines, then gradually descending to middle of side of caudal peduncle, proceeding to base of caudal fin; snout tip, lips, chin, dentary, isthmus, and maxillary naked; remainder of head and body with ctenoid scales covering about basal 1/3~3/4 of dorsal, anal, caudal, and pectoral fins; preorbital (1st infraorbital) entire; preopercle with 2~3 antorse spines on lower border (may be hidden by epidermis) and about 20~25

Table 1. Selected counts for type specimens of *Ellerkeldia wilsoni*. Gill raker counts show total numbers including rudiments.

Dorsal spines		Soft dorsal rays		Pectoral rays		Lateral-line scales					Lower arch gill rakers		
<i>X</i>	<i>XI</i>	17	18	15	16	44	45	46	47	48	11	12	13
10	1	4	7	10	1	2	3	3	2	1	2	4	5

Table 2. Morphometric proportions of type specimens of *Ellerkeldia wilsoni*, in thousandths of the standard length.

Characters	Holotype		Paratypes			
	WAM P26531-010	WAM P26531-011	WAM P26532-001	WAM P26531-011	AMS I.20233-010	WAM P26532-001
Standard length (mm)	151.0	76.5	120.7	133.2	135.0	143.7
Greatest body depth	419	360	414	380	433	422
Head length	452	426	442	432	441	452
Snout length	95	94	108	105	93	104
Eye diameter	111	110	104	102	110	102
Interorbital width	79	43	60	60	61	67
Length of maxillary	190	191	191	182	190	177
Least depth of caudal peduncle	127	119	126	128	139	125
Length of caudal peduncle	99	107	104	107	115	104
Snout to origin of dorsal fin	407	393	400	417	437	405
Snout to origin of anal fin	703	699	713	722	689	699
Snout to origin of pelvic fin	393	414	389	428	379	418
Length of dorsal fin base	577	544	568	544	593	569
Length of anal fin base	166	187	161	170	178	165
Length of pectoral fin	295	320	312	308	307	296
Length of pelvic fin	195	200	195	184	198	181
Length of 1st dorsal spine	54	52	55	59	52	61
Length of 4th dorsal spine	139	140	141	140	128	150
Length of last dorsal spine	84	77	83	71	83	85
Tallest dorsal ray	146	131	152	122	159	146
Length of 1st anal spine	79	98	83	88	89	93
Length of 2nd anal spine	148	175	159	168	161	150
Length of 3rd anal spine	136	150	145	135	152	127
Longest anal ray	172	188	188	176	174	168
Length of caudal fin	221	209	203	203	211	195

small serrae on posterior edge; subopercle with a few small serrae on postero-ventral border; opercle with 3 spines, uppermost frequently obscured by scales.

Upper and lower jaws with bands of depressible villiform teeth, narrowing in width posteriorly; in addition, one or two widely spaced tusk-like canines at front of lower jaw and 1~2 similar teeth about midway back on each dentary, upper jaw with pair of enlarged tusks anteriorly and a series of slightly enlarged retrose canines on either side of median diastema behind band of villiform teeth; vomer with patch of small conical teeth; palatines with biserial conical teeth.

Color in life: The colors of an adult specimen photographed underwater by the senior author at Geographe Bay were as follows: ground color mainly pale pink except light yellow on head and breast; bands on head, and bars on sides (see Figs. 1 and 2 for positions) reddish-brown; pectoral and anal fins pinkish-red; other fins pale or transparent with red suffusion.

Color in alcohol: Ground color generally tan or yellowish; head with several broad diffuse brown stripes or bands, one from snout to front of eye, one from rear of eye to dorsal origin, and another very faint band across middle of opercle; anterior portion of lips dusky; a series of six faint brown bars extending across side of body, the first below dorsal spines 4~6, the second below dorsal spines 8~10, the third below anterior soft dorsal rays, the fourth below posterior soft dorsal rays, and the last two across caudal peduncle; fins mainly pale, but membrane of spinous dorsal and soft rays of dorsal and caudal fins dusky.

The markings on the head and body are more clearly defined in the smaller paratypes (Fig. 2). They exhibit the following additional brown bands on the head: a broad band from upper rear corner of eye extending to nape and joining at midline with similar band from opposite side; a band extending across preopercle to bottom of eye; and a narrow band following dorsal midline from snout to nape.

**Ecology.** *Ellerkeldia wilsoni* is an inhabitant of dark caves and ledges. It is seldom seen

except when flushed from its lairs with chemical ichthyocides. It has been observed or collected at depths between five and 22 m, apparently being most common below about 12 m. In addition, one of the paratypes was collected by hook and line from an area which according to nautical charts is approximately 165 m in depth. The stomach contents of the 133.2 mm SL paratype contained a well-digested specimen of the plesiopid fish *Trachinops noarlungae* Glover (47 mm SL).

**Distribution.** *Ellerkeldia wilsoni* is known only from southwestern Australia between Canal Rocks (33°40'S, 114°59'E) and Fisherman Island near Green Head (30°08'S, 114°57'E). It was observed and photographed underwater at the latter locality by Mr. J. B. Hutchins.

**Remarks.** The distribution records of *Ellerkeldia maccullochi* Whitley from Western Australia by Munro (1959) and Allen (1976) are referable to *E. wilsoni*. The former species is restricted to southeastern Australia. *Ellerkeldia wilsoni* is separable from the other members of the genus on the basis of characters given in the following key.

**Key to the species of *Ellerkeldia***

- 1a. Body with series of 6~7 dark transverse bands or saddles (may be faint in preservative) ..... 2
- 1b. Body without series of 6~7 dark transverse bands, either with horizontal stripe or mottled with irregular broken bands ..... 5
- 2a. Soft dorsal rays 17~18 ..... 3
- 2b. Soft dorsal rays 20~22, rarely 19 .. 4
- 3a. Soft anal rays 7; dark bands very distinct, completely encircling body, the pale interspaces about twice the width of dark bands (southern Queensland; New South Wales) ..... *E. annulata* (Günther)
- 3b. Soft anal rays 8; dark bands faint, particularly in preserved adults, 2~3 anteriormost ones frequently not extending on to ventral part of body, the pale interspaces about equal in width to dark bands (southwestern Australia) ..... *E. wilsoni*, sp. nov.
- 4a. Greatest body depth 2.8~2.9 in standard length; dark bands usually well

- defined, confined mainly to upper half of sides (Lord Howe Island; New Zealand) ..... *E. huntii* (Hector)
- 4b. Greatest body depth 2.4~2.6 in standard length; dark bands abbreviated into series of saddles on upper 1/3~1/4 of back (southeastern Australia).....*E. maccullochi* Whitley
- 5a. Color mostly pale with faint to prominent longitudinal band on upper sides from snout to base of caudal; soft dorsal rays 19 (southwestern Australia).....*E. rubra* Allen
- 5b. Color not as in 5a, dark olive-brown above and grey below, mottled with irregular broken transverse bands; soft dorsal rays 20 (southern Queensland, northern New South Wales) .....*E. jamesoni* (Ogilby)

**Etymology.** The species is named in honor of Dr. Barry R. Wilson, Director of the National Museum of Victoria and formerly Head of the Division of Natural Sciences of the Western Australian Museum.

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Dr. Barry R. Wilson kindly allowed the senior author to use his cottage and laboratory facilities at Geographe Bay on several occasions and served as a diving companion and guide to both authors when we collected type specimens of *E. wilsoni* during December, 1978. We also thank Mr. Barry Hutchins, Assistant Curator of Fishes at WAM for sharing his underwater observations of *E. wilsoni*. Drs. Douglass F. Hoese and John R. Paxton of AMS kindly provided specimens of the other members of *Ellerkeldia*. Mr. Barry C. Russel (Macquarie University, Sydney) collected several paratypes. We also thank Drs. Phillip C. Heemstra (Rhodes University, South Africa) and John E. Randall (Bernice P. Bishop Museum, Honolulu) for their comments concerning the relationship

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#### 南西オーストラリアから得られたハタ科の新種 *Ellerkeldia wilsoni*

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南西オーストラリアから得られたハタ科の新種 *Ellerkeldia wilsoni* を記載した。本種は、特異な斑紋、17~18 背鰭軟条、8 臀鰭軟条、44~48 側線鱗をもつことで、同属他種と区別される。オーストラリア、ニュージーランド海域の、*Ellerkeldia* 属 6 種の検索表を作成した。

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